MUSCULOSKELETAL

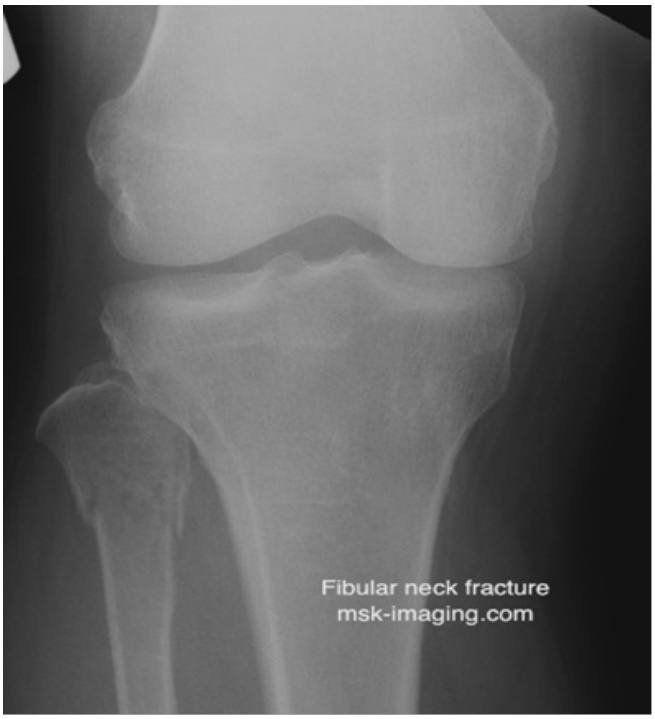
ANKLE INVERSION INJURIES

Ankle inversion injuries are one of the most common presentations to an ED / MIU. The "Ottowa ankle rules" have been validated to aid clinical examination correlation with the use of radiography. However, they are not fully exclusive and there is a need to appreciate that other fractures can occur following an ankle inversion injury that are not isolated to the ankle joint.

The following list of other injuries to consider is not exhaustive and all bones on the x-ray should be thoroughly viewed prior to labelling the patient as having an "ankle sprain".

Fracture neck of Fibula

Always palpate the neck of fibula during ankle examination. An isolated fracture can occur here or be present in combination with an ankle fracture.



Maissonneuve #
Spiral fracture of the proximal third of the fibula associated with a tear of the distal tibiofibular syndesmosis and the interosseous membrane. There is an associated fracture of the medial malleolus or rupture of the deep deltoid ligament.

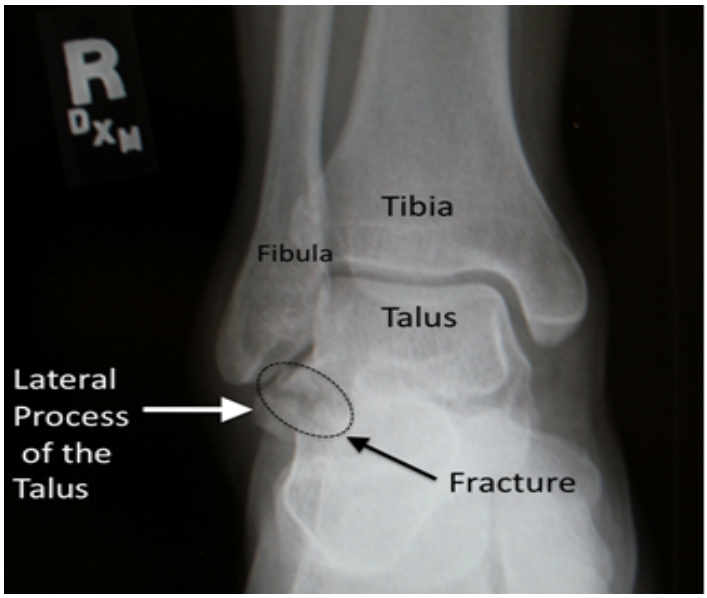
Osteochondral Talar Dome Injuries

The force of an ankle inversion injury can lead to injury of the articular surface of the talar dome, either the articular cartilage alone (chondral injury) or involving the underlying bone (osteochondral injury).

Although MRI is the gold standard for diagnosing this type of injury, osteochondral fractures may be visible on the original ankle x-ray. It has even been proposed in elite sport that all significant ankle sprains should undergo MRI and ankle arthroscopy to determine if talar dome osteochondral injury is present.

Fracture of the lateral process of the Talus

These patients will demonstrate no bony tenderness on palpation of the normal ankle landmarks in the Ottowa rules. They will be complaining of pain and have difficulty in weightbearing so will merit an x-ray. Depending upon the degree of separation of the lateral process these patients may require a CT scan and internal fixation of the fracture.



Calcaneal Fracture

Palpate the calcaneum as part of your ankle examination. The twisting motion of an inversion injury can lead to an isolated calcaneal fracture with no malleolar tenderness on examination.

Jones Fracture

Palpating the base of the 5th metatarsal bone is part of the ankle clinical examination. Also palpate further down the shaft of the 5th metatarsal so not to miss a potential Jones fracture, which occur in the proximal shaft of the bone. These fractures have a reputation of non- union and in the elite sporting world undergo screw fixation. In the NHS this is not standard management and a series review of Jones fractures here in the GRI Orthopaedic unit indicated only a small number of non- union cases in those treated conservatively.

Also be aware that a fracture of the lateral malleolus and base of 5th metatarsal can occur together. Radiology will often call you to ask why you are x-raying an ankle and a foot together. If clinical examination indicates bony tenderness then stick to your guns and x-ray both the ankle and the foot.